CUMULATIVE INDEX 1998

Volume 31

February	ALLERGY MANAGEMENT FOR THE OTOLARYNGOLOGIST, pages 1–240
April	COMPUTERS IN OTOLARYNGOLOGY, pages 241–396
June	DYSPHAGIA IN CHILDREN, ADULTS, AND GERIATRICS, pages 397–584
August	MANAGEMENT OF THE NECK IN HEAD AND NECK CANCER, PART I, pages 585–758
October	MANAGEMENT OF THE NECK IN HEAD AND NECK CANCER, PART II, pages 759–910
December	SLEEP APNEA, PART I, pages 911–1086

Note: Page numbers of issue and article titles are in **boldface** type.

Abdomen, graphic representation of, 251, 252
  virtual, by R.M. Satava, 249, 250
    K. McGovern and, 251
Abscess(es), of neck, dysphagia with, 443
  peritonsillar, dysphagia with, 442
  retropharyngeal, dysphagia with, 442–443
Acoustic reflection, in upper airway, 936–938
Adenoids, obstructive sleep apnea in children and, 972–973
Adjuvant chemotherapy, in cancers of head and neck, 884–885
Adult(s), anatomy and physiology of swallowing in, **477–488**
  disorders of swallowing in, therapy for, **561–579**
  dysphagia in, systemic causes of, **525–533**
Aerodigestive tract, upper, lymphatic drainage of, 845–848
    normal, 733
    squamous cell carcinoma of, elective irradiation of clinically negative neck in, 803–813
      treatment of N+ neck in, **671–686**
Afferent nerve pathways, and feedback, in swallowing, 480–481
Aging, dysphagia in, 531
Air contrast esophagram, in dysphagia, 491
Airway, caliber of, Muller maneuver and, 945–947
  hypopharyngeal. See *Hypopharyngeal airway.*
  pharyngeal. See *Pharyngeal airway.*
  upper, abnormal resistance, and central sleep apnea, 1060–1062
  acoustic reflection in, 936–938
  anatomy of, 932–935
    Fugita's classification of, 925, 926–927
  assessment of, **931–968**
  bypass surgery of, for obstructive sleep apnea syndrome, **1013–1023**
  cephalometry of, 940–941
  computed tomography of, 941–944
  fluoroscopy of, 939
  imaging of, clinical usefulness of, 962–963
    for insights into treatment of obstructive sleep apnea, 953–961
    genetics of obstructive sleep apnea and, 962
    insights into pathogenesis of obstructive sleep with, 945–953
    modalities for, 935–944
  magnetic resonance imaging of, 944
  nasopharyngoscopy of, 939
  soft tissue structures of, during wakefulness, 947–950
  state dependent imaging of, 952–953
  surgery of, in obstructive sleep apnea, 959–961
Alastat, 31
Alder, pollen of, 15
ALERTS, 282
Allergens, for otolaryngic allergy management, 79–80
  indoor, 84–88
  outdoor, 88–89

Allergic patient(s), nasal and sinus surgery in, 184–185
on beta-adrengic blockers, treatment of, 216
Allergic reaction(s), and nose, 175–176
classification of, 176
laryngeal involvement in, 191–193, 194, 195
pathophysiology of, 190–191
Allergic rhinitis, 71, **129–140**
antihistamines and, 94–98
cost-effective pharmocotherapy for, 74–75
costs of, 91–93
environmental control and, 178
immunotherapy in, 181–182
management of, 73–81
medications for, 93–94
oral immunotherapy in, 131–132, 133
pharmacotherapy for, **91–110**, 179–181
subcutaneous immunotherapy in, 130
sublingual immunotherapy in, 131–132, 133
targeting symptoms of, 105–108
treatment of, 177–182
Allergy(ies), allergy testing in, 167–168
and sinus disease, interrelationship of, 182–183
and turbinate hypertrophy, 183
diagnosis of, 193–198
confirmation of, 176–177
in vitro testing for, **27–34**
diet in, 171
differential diagnosis of, 198–200
epidemiology of, 189–190
evaluation of, history of, 165
food. See *Food allergy(ies).*
for laryngologist, **189–205**
for otologist, **157–173**
for rhinologists, **175–187**
in vitro IgE measurements in, 196–197
in vitro tests of, 177
inhalant. See *Inhalant allergies.*
laboratory tests in, 166–167
management of, for otolaryngologist, **1–235**
otolaryngic, management of. See *Otolaryngic allergy management.*
otologic manifestations of, 158–165
pharmacotherapy in, 168–171
physical examination in, of ears, 165–166
of neck, 166
of nose, 166
skin testing in, 195–196
treatment of, 168, 200–203
Allergy emergencies, otolaryngic, approaches to, **207–219**
clinical presentation of, 209–210
differential diagnosis of, 210–211
equipment and medications for, 214
history of, 208
pathophysiology of, 208–209
prophylaxis of, 211–213
treatment of, 213–217
Allergy immunotherapy. See *Immunotherapy, allergy.*
Allergy skin tests. See *Skin tests.*
Allergy techniques, current otolaryngic, evolution of, **1–10**
Alprazolam, in dysphagia, 472–473
Alternaria, 20
Alveolar hypoventilation, congenital central, 1053–1055
in defects involving integrative and executive neurons, 1055–1056
in neuromuscular diseases producing impairment of motor component, 1056–1058
non-neurologic causes of, 1058–1060
sensory component of, 1053–1055
Alzheimer's disease, dysphagia in, 530–531
American Academy of Otolaryngic Allergy, food allergies and, 142
American Academy of Otolaryngology–Head and Neck Surgery, Web site of, 269–270
American Academy of Otolaryngology–Head and Neck Surgery (AAO-HNS), cervical lymphadenectomy and, 639, 642, 673
American Joint Committee on Cancer, clinical nodal staging guidelines of, 746, 748
modified radiologic nodal staging guidelines of, 746, 749
TNM classifications of, 728, 729
American Medical Association, Physicians Accessing Internet (PAI) project of, 257
Amytrophic lateral sclerosis, dysphagia in, 512–516, 530
Anaphylaxis, etiologic agents in, 192
treatment of, protocol for, 192
Anatomy, computers to teach, 361
Angioedema, 210
hereditary, 198
Angiogenesis, definition of, 592
in oral carcinoma, without metastasis, 628
in squamous cell carcinomas of head and neck, 592–595
Angiotensin-converting enzyme deficiency, congenital, 198–199
Animal danders, as allergens, 87–88
Anti-allergy medications, new, 77
Anticholinergics, 100
in allergic rhinitis, 181
in allergies, 201
Antigen leukocyte antibody test (ALCAT), 151

Antigens, cellular, identification of, 860–861
tissue, identification of, 860
Antihistamines, allergic rhinitis and, 94–98
classification of, 95–98
in allergic rhinitis, 179
in allergies, 168–169, 201, 211
Antimycotics, topical, for use in oral cavity, 894–895, 896
Argyrophilic nucleolar organizer regions, 872–873
Artery, carotid, invasion of, in squamous cell carcinoma of N+ neck, 676–677, 678
Arthritis, rheumatoid, dysphagia in, 529
Arytenoid adduction, in swallowing disorders, 551–553
Ascomycetes, 22
Ash, pollen of, 14
Aspergillus, 21
Aspiration, as complication of swallowing disorders, 546
Aspiration cytology, ultrasound guided, in detection of lymph node metastases, in cancer of head and neck, 610–611
Aspiration pneumonia, following stroke, 520
Association of American Medical Colleges (AAMC), computer education and, 302
Asthma, cough variant, 199–200
Autoimmune diseases, dysphagia secondary to, 577
secondary, dysphagia in, 529–530

Barium esophagram, in dysphagia, 490–491
Basal cell carcinoma, epidemiology of, 844
metastasis of, factors associated with, 844–845
Basidiomyctes, 22–23
Basophil histamine release test (BHRT), 150
Behavioral intervention, in failure to thrive, 470–473
Behavioral therapy, cognitive, 472–473
Beta-adrenergic blockers, allergic patients on, treatment of, 216
Biomechanical virtual reality simulator, 360
Birches, pollen of, 14
Body Mass Index, assessment of, in obstructive sleep apnea, 921–922
Bolus manipulation exercises, in swallowing therapy, 567
Bolus scintigraphy, in dysphagia, 494
Bone, effects of radiation therapy on, 692
radiated, and nonradiated, craniofacial implants in, 695
integration time for grafts in, 695
Bone grafting, corticocancellous, secondary, free osteocutaneous graft and, 710–714
following removal of tumors of head and neck, 691
Bone grafts, selection of, for reconstruction following tumor ablation, 691–692
Bone marrow grafts, in management of head and neck cancers, 896–897
Bone marrow toxicity, chemotherapy-associated, 892
Botulinum toxin therapy, in dysphagia, 541–542
Box elder, pollen of, 15
Brain, traumatic injury of, dysphagia following, 576
Breathing, sleep disordered. See *Sleep disordered breathing.*

C1 INH deficiency, acquired, 198
Cancer(s), invasion of, biology of, 587–590
metastases of, to lymph nodes. See *Lymph nodes, metastases to.*
of head and neck. See *Head, and neck, cancer of.*
of major salivary glands, dissection of neck in, **815–821**
Candida albicans, 21
Carcinogenesis, multistep, 586
Carcinoma(s), basal cell, epidemiology of, 844
metastasis of, factors associated with, 844–845
cutaneous, metastasis of, to parotid lymph nodes, 851–853
nonmelanocytic, management of neck in, **841–856**
Merkel cell, 845
nasopharyngeal. See *Nasopharyngeal carcinoma.*
clinically negative neck in, 661–662
nonmelanocytic cutaneous, clinically negative cervical nodes in, management of neck in, 848–851
of digestive tract, nodal metastases of, 621–634
of larynx, clinically negative neck in, 664–666
of oral cavity, metastasis of, pathologic factors in, 625–628
presurgical clinical factors in, 624–625
of upper respiratory tract, nodal metastases of, 621–634
primary, site and size of, metastasis and, 622–624
primary versus metastatic, immunohistochemical studies of, 863–864
squamous cell. See *Squamous cell carcinoma(s).*
Carotid artery, invasion of, in squamous cell carcinoma of N+ neck, 676–677, 678
Cat epidermal allergy, 24–25
Caustic ingestion, dysphagia with, 449

CD-ROM databases, 282
CD-ROM textbooks and journals, 305
Cellular antigens, identification of, 860–861
Central nervous system, diseases of, dysphagia with, 444–445
Cephalometrics, preoperative, for diagnosis of obstructive sleep apnea, 1027–1028
Cephalometry, of upper airway, 940–941
Cerebral cortex, role in swallowing, 477–478, 479
Cerebral palsy, feeding problems in, 456, 469
Cerebrovascular accident. See *Stroke*.
Challenge tests, mucosal, 176
Chemical sensitivities. See *Sensitivity(ies), chemical*.
Chemicals, definition of, 57–59
Chemoprevention, in cancers of head and neck, 885–886, 898
Chemoradiation, combined-modality, in cancers of head and neck, 883–884
  dissection of neck after, complications of, 780–782
  in cancer of head and neck, 774
  issues related to, and management of neck in head and neck cancer, 775–776
  trials of, in head and neck cancer, 775
Chemotherapeutic agents, side effects of, 889–893
Chemotherapy, adjuvant, in cancers of head and neck, 884–885
  intralesional, of cancer of head and neck, 886–887
  neoadjuvant, in cancers of head and neck, 884
  palliative, in cancers of head and neck, 885
  radiation and, in nasopharyngeal carcinoma, 795–796
  topical, of cancer of head and neck, 887
Chewing, development of, 406
Child(ren), dysphagia in, differential diagnosis of, **435–451**
    management of, **453–476**
  gastroesophageal reflux in, **419–434**
  swallowing disorders in, anatomy and physiology of, **397–404**
    evaluation of, **405–418**
  with obstructive sleep apnea syndrome, evaluation of, 969–970
    indications for surgery in, 971
    nonsurgical and surgical management of, **969–977**
    nonsurgical management of, 971–972
    surgical management of, 972–975
    treatment options in, 970
Chinese restaurant syndrome, 59
Choanal atresia, dysphagia and, 435–436
Cisplatin, in cancer of head and neck, 774
Cladosporium, 20
Cleft lip and/or cleft palate, dysphagia and, 437–438
CME programs, World Wide Web and, 270
Cochlear hydrops, 164
Cockroaches, as allergens, 24
Common gateway interface (CGI), 273
Computed tomography, for staging of nodal metastatic disease, 751
  for staging of squamous cell carcinoma of head and neck, 728–730
  high-resolution, in evaluation of cranial base tumors, 343–344
  in detection of lymph node metastases, in cancer of head and neck, 611–612
  of upper airway, 941–944
  or ultrasound, for detection of occult lymph node metastases, 834
  scans, spiral or helical, 248
Computer-augmented endoscopic sinus surgery. See *Sinus surgery, endoscopic, computer-augmented*.
Computer-based physician education. See *Physician education, computer-based*.
Computer simulation, of face, 362–363
Computerized patient records. See *Patient record(s), computerized*.
Computer(s), and Internet. See *Internet*.
  circulatory model and, 366
  communication between. See *Telecomputing*.
  complex human kinematics and, 361
  domain name servers (DNS), 259
  finite element mesh (FEM) and, applications of, 362
    development of, 359–360
  in flight simulation to surgical simulation, 363–366
  in otolaryngology, **241–392**
  interface and, 256
  multimedia and, 256
  on-line medical community and, 256–257
  patient-specific data and, 359
  realistic animation, and biomechanical simulation of muscle and, 361
  to aid expert system for surgeon, 358–359
  to display results of surgeon, 359
  to teach anatomy, 361
Congenital central alveolar hypoventilation, 1053–1055
Congestive heart failure, sleep-related hypoventilation in, 1059–1060
Connective tissue disease, mixed, dysphagia in, 529
Continuous positive airway pressure, in obstructive sleep apnea, 955–956
Cookies, World Wide Web and, 273

Cordotomy, cervical, sleep-related hypoventilation and, 1055
Corticosteroids, 100–104
in allergic rhinitis, 180–181
in allergy, 170
mode of action of, 101
preoperative, in nasal and sinus surgery in allergies, 184–185
side effects of, 101
Cottonwood trees, pollen of, 15
Cranial base, tumor(s) of, evaluation of, advanced simulation technology for, **341–356**
comprehensive system by interdisciplinary in, 345–346
dexterous interfaces for, 349–350
high resolution computed tomography for, 343–344
image processing in, 347–348
imaging methods in, 346–347
presurgical planning for, 353
resolution, segmentation and interactivity in, 353–354
system evaluation of imaging techniques and volume graphics synthesis in, 350–353
three-dimensional reconstruction in, 344
three-dimensional rendering in, 344–345
visualization/rendering in, 347–348
volume data files and scanners for, 342–343
Craniofacial impiants, in radiated and nonradiated bone, 695
Cricoidectomy, subperichondrial, in swallowing disorders, 547, 548–549
Cricopharyngeal myotomy, in dysphagia, 540–541
in Zenker's diverticula, 542–544
Cromolyn, in allergic rhinitis, 76
in allergies, 201
Cromolyn sodium, 104
in allergy, 169–170
oral, in food allergies, 153–154
Cytotoxic test, for food allergies, 150–151

Data Fusion, 363–364, 365
Databases, CD-ROM, 282
MeSH-based, 283
Decongestants, 98–100
in allergic rhinitis, 179–180
in allergies, 169, 201
mechanism of action of, and uses of, 99
side effects of, 99–100
Deglutition, development of, 406–407
Delp, Dr. Scott, 249
Dental appliances, obstructive sleep apnea and, 956–959
Dentures, poorly fitting, swallowing and, 486
Dermatomyositis, dysphagia in, 529
Dermatophytid reaction, 159–160
Desensitization, enzyme potentiated, in food allergies, 153
Diet, dysphagic, 469–572
in allergy, 171
Digestive tract, carcinomas of, nodal metastases of, 621–634
Digital video disk, for computer-based patient education, 311, 315
DIMSOFT test, 147–148
Diverticuloscope, van Overbeek's, 545, 546
Dizziness, in allergy, 164
DNA in-situ hybridization, 866–867
Domain name servers (DNS), 259
"Doorway to the Future" of medicine, 243–244
Drug therapy, dysphagia as complication of, 532
Dust, as allergen, 23, 84–86
Dust mites, as allergens, 23–24, 84–86
Dysautonomia, familial, sleep apnea in, 1054
Dysphagia, **397–579**
as complication of drug therapy, 532
bolus scintigraphy in, 494
caused by neurologic deficits, **507–524**
contemporary diagnosis of, **489–506**
definition of, 397
developmental, 408
diagnostic studies in. See specific studies.
esophageal, causes of, 526
following stroke, 519–521, 530, 575–576
following traumatic brain injury, 576
in adults, differential diagnosis of, 525
systemic causes of, **525–533**
in aging, 531
in neurologic diseases, 512–521
infectious causes of, 441–443, 527–528
inflammatory causes of, 528–530
mechanical, 408
neoplastic causes of, 446–448, 527
neurogenic, 408
neurologic causes of, 443–446, 530–531
oral, 407
oropharyngeal, causes of, 525
otolaryngologic assessment in, 415–416, 417
pediatric, classification of, 407
differential diagnosis of, **435–451**
food rules in, 455
management of, **453–476**
principles of, 454
recommendations in, 454
position and posture changes in, 455–457, 458
pharyngeal, 407–408

Dysphagia (*Continued*)
radiographic assessment of, 412–414, 415
secondary to autoimmune diseases, 577
source of, physical examination to assess, 510–511
surgically-related, 448
traumatic causes of, 448–449, 526
ultrasonography in, 414, 495
with degenerative neuromuscular disease, 576–577
work-up in, 511–512

E-mail, addressing of, 258–259
advantages of, 257–258
and Internet, 257
disadvantage of, 258
domain name and, 258–259
in otolaryngology, 258
legal and ethical issues associated with, 260
listservers, 259–260
mailing lists, 259–260
manners and abuse in use of, 262–263
Ear, examination of, in allergy, 165–166
external, allergy and, 159–160
inner, allergy and, 162–165
middle, allergy and, 160–162
Education. See *Medical education, Patient education, Physician education.*
Electron beam tomography, 248
Emergencies, allergy. See *Allergy emergencies, otolaryngic.*
Endoscopic computer-augmented sinus surgery. See *Sinus surgery, endoscopic, computer-augmented.*
Endoscopic computer-generated sinus simulators, 376–380
Endoscopy, virtual, 248–249
camera guidance for, 386
flight path for, 386–387
imaging and display in, limitations of, 383
material and methods of, 385
three-dimensional manipulation for, 248
Endosseous grafts. See *Graft(s), endosseous.*
Environmental control, allergic rhinitis and, 178
in allergies, 200–201
Environmental modifications, for inhalant allergy patient, **83–90**
Environmental sensitivities. See *Sensitivity(ies), chemical and environmental.*
Environments, virtual. See *Virtual environments.*
Enzyme-linked immunosorbent assay (ELISA), 149–150
/activated cell test, 151–152
Enzyme potentiated desensitization, in food allergies, 153
Epicoccum, 20–21
Epidermals, as allergens, 23–25
Epidermolysis bullosa, dysphagia in, 529
Epiglottitis, dysphagia with, 443
Epstein-Barr virus, nasopharyngeal carcinomas and, 899
Epstein Barr virus-associated nuclear antigen (EBVNA), and nasopharyngeal carcinoma, 789
Esophageal atresia, 439–440
Esophageal sphincter, lower, in swallowing, 485–486
upper, in swallowing, 482–483
Esophagitis, dysphagia with, 443
Esophagogastroduodenoscopy, in gastroesophageal reflux, 424
Esophagram, air contrast, in dysphagia, 491
barium, in dysphagia, 490–491
Esophagus, anatomy of, 483–485
changes in, with aging, 487
disorders of, dysphagia in, 467–468
in swallowing, 485
Evergreens, pollen of, 15–16
Exercise(s), bolus manipulation, in swallowing therapy, 567
oromotor strengthening, in swallowing therapy, 566–567
Expert system, for surgeon, computers to aid, 358–359
Extracellular matrix, degradation of, 590–591
Extracts, allergenic, for testing and immunotherapy of inhalant allergies, **11–25**
Eye surgery, enhanced dexterity system for, 245–248
Eye symptoms, in allergic rhinitis, management of, 107, 108

Face, computer simulation of, 362–363
scalp, and upper neck, lymphatic drainage of, 846
Facial paralysis, in occult metastases to lymph nodes, 818
Facial skeleton, assessment of, in obstructive sleep apnea, 923, 924, 925
Failure to thrive, behavioral intervention in, 470–473
outcomes with, 473
FAST assay, 30
Feeding, and swallowing, development of, 405–407
disordered, in children, classification of, 407–408
medical history in children with, 408–409

Feeding gastrostomy, in gastroesophageal reflux, 429
Fiberoptic endoscopic examination, of swallowing, 414–415
Filter hybridization, 866–867
Fine-needle aspiration biopsy, 874–877
advantages of, 875
diagnosis after, problems associated with, 876–877
in masses of head and neck, 875–876
performance of, 874–875
Finite element mesh (FEM), computers and, 359–360, 362
Flexible endoscopic evaluation of swallowing, 512
with sensory testing, 493–494
Flexible fiberoptic nasopharyngoscopy, in obstructive sleep apnea, 926–928
Flight simulation, computers in, 363–366
Flow cytometry, 869–871
Fluoroscopy, of upper airway, 939
Folkman, M. Judah, 592
Food allergy(ies), American Academy of Otolaryngic Allergy and, 142
diagnosis of, 6–8, 142–143
and treatment of, alternatives in, **141–155**
diagnostic procedures in, 146–148
ex vivo tests for, 150–152
fixed, 152–153
IgE-mediated, 152–153
in vitro tests for, 148–150
testing in, 167–168, 197
treatment of, 8
treatment only modalities in, 152–153
Food enzyme-linked immune complex assay (FELICA), 145, 152
Food rules, in pediatric dysphagia, 455
Food test(s), intracutaneous progressive dilution, 144
oral challenge, 143–144
skin, evolution of, 144
Food(s), allergy to, skin tests for, **35–53**
and liquids, attributes, alterations in, in pediatric dysphagia, 457–460
physical characteristics of, based on rheology, 458–459
hypersensitivity to, skin tests for, 47–48
taste of, alteration of, in swallowing problems, 569–570
temperature of, alteration of, in swallowing problems, 570
texture of, alteration of, in swallowing problems, 569
timing of presentation of, in swallowing problems, 571–572
Foregut, malformations of, dysphagia with, 440
Foreign body ingestion, dysphagia with, 449
Frames, World Wide Web and, 273
Fugita's classification of anatomy of upper airway, 925, 926–927
Fundoplication, in gastroesophageal reflux, 428–429
Fungal sinusitis, allergic, 185–186
Fungi, extracts of, in allergy, 18–20
Fusarium, 21

Ganglioblastoma, 1054
Gastric outlet procedures, in gastroesophageal reflux, 429
Gastroesophageal reflux, definition of, 419
dysphagia associated with, 449
in children, **419–434**
anatomic factors contributing to, 420–421
classification of, 419–420
clinical presentation of, 422–423
diagnostic evaluation of, 423–425
epidemiology of, 420
pathophysiology of, 420–422
physiologic factors contributing to, 421–422
treatment of, 425–429, 459
Gene therapy, cancer of head and neck and, 898–899
in cancers of head and neck, 898–899
General Professional Education for Physicians (GPEP), computer education and, 302
Geriatrics, anatomy and physiology of swallowing in, **477–488**
Glossectomy, laser midline, 994
Glottic prosthesis, to prevent aspiration, 549, 550
Glottis, anatomy of, 738, 742
carcinoma of, clinically negative neck in, 665–666
squamous cell carcinoma of, radiologic staging of, 740, 741, 742–743
Graft-versus-host disease, following bone marrow grafting, 897
Graft(s), endosseous, free composite, immediate placement of, at reconstruction, 694
integration time for, in radiated bone, 695
placement of, timing of, following radiation therapy, 694
remodeling and resorption of, 694
vascularized, 694
free composite, following removal of tumors of head and neck, 691
free osteocutaneous, and secondary corticocancellous bone grafting, 710–714
free vascularized composite, following removal of tumors of head and neck, 692

Graft(s) (*Continued*)
vascularized composite, following removal of tumors of head and neck, 690
Grasses, pollen of, 16–17
Green Telepresence Surgery System, 245, 246–247

Head, and neck, cancer of, and management of neck in, issues related to
chemoradiation in, 775–776
chemoprevention of, 898
combination thrapy in, 883–884
concurrent chemotherapy and radiation in, management of neck in, **773–784**
dysphagia with, 577–578
epidemiology and pathogenesis of, 881–882
extracapsular spread of, 764–765
gene therapy of, 898–899
immunotherapy of, 898–899
lymph node metastases in, 601
imaging techniques in, 609–613
mechanism of, **585–599**
predictive factors in, **621–637**
radiologic criteria for, 605–609
management of neck in, **585–754**, **759–905**
medical oncology in management of, **881–905**
future of, 897–899
metastases from, presence, size, number, and extent of, 763–764
metastasis of, immunodeficiency and biomarkers and, 627–628
micrometastases of, 765
nodal metastasis of, 765
desmoplastic stromal pattern of, 765
histopathologic examination techniques in, 767
nonmetastatic lymph nodes of, immunomorphologic reation patterns of, 765–766
prediction of response and prognosis in, future directions in, 899
regional control of, impact of chemoradiation on, 776–780
staging systems for, 882–883
lymph node metastases in, multifactorial studies in, 628–629
masses of, fine-needle aspiration biopsy in, 875–876
primary tumors of, histopathologic features of, 766–767
squamous cell carcinoma of. See *Squamous cell carcinoma(s), of head and neck.*
tumors of, bone grafting following removal of, 691
removal of, implants for reconstruction following, **689–725**
melanoma of, sentinel node biopsy in, 836
Heart failure, congestive, sleep-related hypoventilation in, 1059–1060
Helminthosporium, 20
Hemangioma, dysphagia with, 446
Hemimaxilla, right, secondary reconstruction of, in nonirradiated field, 719–721
Hirschsprung's disease, 1054
Histamine receptors, physiology of, 209
House dust, as allergen, 23
HTTP, 263
Human papilloma viruses, 882
Huntington's disease, dysphagia in, 517–518
Hybridization, 864–865
filter, 865–866
in-situ, 866–867
Hyoid, myotomy and suspension of, 994, 996–998, 999, 1000
Hyperbaric oxygen therapy, following radiation therapy, 693, 695
Hypermedia, 264
Hyperplasia, reactive lymphoid, versus malignant lymphoma/leukemia, immunohistochemical studies of, 861–862
Hypersensitivity, types of, 158
Hypertext, 264
Hypertext markup language (HTML), 266
Hypertext transport protocol, 263
Hypopharyngeal airway, in sleep disordered breathing, classification of disease severity in, 987
fiberoptic nasopharyngoscopy in, 982–984
lateral cephalometric analysis in, 984–985
phase I surgical outcomes, 998–1001
phase II surgical outcomes, 1006–1007
physical examination in, 982
polysomnography in, 985–986
preoperative general medical concerns in, 986–987
presurgical evaluation in, 981–982
surgical indications in, 981
surgical management of, **979–1012**
treatment philosophy in, 980–981
obstruction of, surgical procedures for, 987–1007
Hypopharynx, cancer of, metastasis to retropharyngeal nodes, 678
portal of, enlargement of, in swallowing disorders, 547, 548–549

squamous cell carcinoma of, classification of, 888–889
radiologic staging of, 736–737, 738
tumors of, clinically negative neck in, 663–664
Hypoventilation, alveolar. See *Alveolar hypoventilation.*
primary central congenital, 1054

Immunodeficiency, metastasis of cancer of head and neck and, 627–628
Immunoglobulin E, specific, test of, for food allergies, 148–149
Immunoglobulin G test, 149
Immunohistochemistry, 860–864
applications of, in laboratory, 861–864
in large-cell poorly differentiated tumors, 862–863
in malignant spindle-cell tumors, 862
in primary and metastatic carcinomas, 863–864
in reactive lymphoid hyperplasias and malignant lymphoma/leukemia, 861–862
Immunology, history of, 157–158
Immunotherapy, allergy, **111–127**
administration of, 124–125
based on in vitro testing, 119–121
cessation of, 125–126
diagnostic testing for, 114–119
dosage advancement in, 123
maintenance dose, 124
rush therapy, 123–124
specific principles of, 111–114
treatment vials for, preparation of, 121–123
annual costs of, 138
efficacy and outcomes of, 135–138
in allergic rhinitis, 181–182
in allergies, 170–171, 202
in cancers of head and neck, 898–899
in otolaryngic allergy management, 80–81
nasal, in allergic rhinitis, 132–134
oral, in allergic rhinitis, 131–132, 133
starting dose, skin tests, 42–43
subcutaneous, in allergic rhinitis, 130
safety considerations in, 134
sublingual, in allergic rhinitis, 131–132, 133
Implant(s), craniofacial, in radiated and nonradiated bone, 695
endosseous, following removal of tumors of head and neck, 689, 690
for reconstruction, effects of radiation on, 693
following removal of tumors of head and neck, **689–725**
timing of, 694–695
osseo-integration of, 693
In-situ hybridization, 866–867
Infants. See *Child(ren).*
Infection(s), dysphagia caused by, 441–443, 527–528
local and systemic, as complication of chemotherapy, 894–896
Inflammatory disease, dysphagia in, 528–530
Information Age, 242
Inhalant allergies, environmental modifications in, **83–90**
in vitro techniques in, 3–4
in vivo techniques in, 1–3
testing and immunotherapy of, allergenic extracts for, **11–25**
treatment of, 4–6
Inhalants, allergy skin tests for, **35–53**
as allergens, 23–25
Interferon alpha-2B, in nodal metastasis of melanoma, 837–838
Internet, as telemedicine tool, 323
continuing medical education based on, 305–306
definition of, 256
e-mail and, 257
education of medica students and, 304
education of patient and, 310, 313–314
information for researchers on, 324
interest of doctors in, 257
medical, types of web sites on, 267
modalities less widely used, 257
otolaryngology and, **255–276**
Physicians Accessing (PAI) project of American Medical Association, 257
World Wide Web and, 257
InterNIC, 259
Intralesional chemotherapy, of cancer of head and neck, 886–887
Intranet, World Wide Web and, 273
IP address, 258–259
Irradiation, elective, in clinically negative neck, 806–807
in squamous cell carcinoma of upper aerodigestive tract, 803–813
of clinically negative neck, principles of, 807–808

Java applets, 274

Kinematics, complex human, computers and, 361

Laboratory evaluation, in nasopharyngeal carcinoma, 789–791
Large-cell poorly differentiated tumors, immunohistochemical studies of, 862–863
Laryngeal nerve injury, dysphagia in, 521

Laryngeal pacing, electric, in prevention of aspiration, 557
Laryngectomy, total, in swallowing disorders, 547
Laryngologist, allergy for, **189–205**
Laryngomalacia, 438
Laryngoplasty, tubed, in swallowing disorders, 553, 554
Laryngotracheal separation, in swallowing disorders, 556
Larynx, anatomy of, 737, 738
  carcinoma of, clinically negative neck in, 664–666
  clefts of, dysphagia with, 439
  involvement in allergic reactions, 191–193, 194, 195
  squamous cell carcinoma of, bilateral nodal metastasis from, 675, 676
    classification of, 888–889
    radiologic staging of, 737–743
  supraglottic, closure of, in swallowing disorders, 553–555
Leg, lower, virtual model of, 249, 250
Leiomyoma, dysphagia with, 447
Lingualplasty, 994
Listserver, 259
Literature, medical, searching of, **277–287**
    available sources for, 278–282
    Boolean search techniques for, 284–285
    clinician versus librarian for, 278
    improving search strategy for, 285–286
    search techniques for, 282–285
    suppliers of software for, 280
Lodoxamide tromethamine, 104
Lou Gehrig's disease, dysphagia in, 512–516, 530
Lupus erythematosus, systemic, dysphagia in, 528–529
Lymph nodes, bilateral, and second jugular vein, 675–676
  cervical, clinically positive, in cutaneous carcinomas, 853–854
    groups of, 640–642
    location of, level system for describing, 640–642, 673
      discussion of, 651–653
      subzones of, 652, 653
    stations of, and nasopharyngeal carcinoma, 787, 788
  "fixed," in N+ neck, 677
  groups of, in neck, 788
  groups of importance in staging of squamous cell carcinoma of head and neck, 746, 747
  histologic evaluation of, 761–763
  in head and neck cancer, 759–760
    prognostic nodal factors and, 763
  metastases to, in cancer of head and neck, 601
    imaging techniques in, 609–613
    incidence of, 727, 728
    mechanism of, **585–599**
    predictive factors in, **621–637**
    radiologic criteria for, 605–609
  in cancer of salivary glands, 815
  in carcinomas of digestive tract, 621–634
  in carcinomas of upper respiratory tract, 621–634
  in medullary thyroid cancer, 829–830
  in oral cancer. See *Oral cavity, cancer of, nodal metastasis in.*
  in squamous cell carcinoma of head and neck, staging of, 745–751
  occult, and facial paralysis, 818
    and primary tumor stage, 817
    and tumor grade, 817
    and tumor histology, 817
    and tumor size, 818
    computed tomography scans or ultrasound in detection of, 834
    in salivary gland cancers, 820
  pathologic detection of, efficiency of, 622
  parotid, metastasis of cutaneous carcinomas to, 851–853
  positive, presence of, as prognostic factor in melanoma, 835–836
  retropharyngeal, metastasis of tumors of neck to, 678–679
Lymphadenectomy, cervical, terminology related to, 639, 673
Lymphagioma, dysphagia with, 446
Lymphatic drainage, from nasopharynx, patterns of, and nasopharyngeal carcinoma, 787, 789
  of face, scalp, and upper neck, 845–848
Lymphoma/leukemia, malignant, reactive lymphoid hyperplasias versus, immunohistochemical studies of, 861–862
Lymphoscintigraphy, in treatment of neck in melanoma, 836

Macroglossia, obstructive sleep apnea in children and, 975
Magnetic resonance imaging, for staging of nodal metastatic disease, 751
  for staging of squamous cell carcinoma of head and neck, 728–730
  in detection of lymph node metastases, in cancer of head and neck, 611–612
  of upper airway, 944
Mailing lists, of interest to otolaryngology surgeons, 259–260

Maltase deficiency myopathy, sleep-related complaints in, 1057
Managed care plans, capitation and, 231–234
and otolaryngic allergy, **221–235**
contractural terms in, 222–225
information systems and, 229–231
organizational structure of, 222–223
practice management issues and, 227–229
"withhold" in, 226
Mandible, inferior sagittal osteotomy of, and genioglossal advancement, 994
osteotomy of, and genioglossus advancement, 995–996
Mandibular body, and symphysis, primary reconstruction of, in nonradiated field, 701–705
angle-to-angle defect of, free osteocutaneous graft for, in radiated field, 705–710
ramus, and condyle, primary reconstruction of, in nonradiated field, 710
secondary reconstruction of, in irradiated field, 695–698
in nonradiated field, 698–701
Mandibular condyle, ramus, body, and symphysis, secondary reconstruction of, in radiated field, 714–719
Manofluorography, in dysphagia, 493
Manometry, in dysphagia, 493
in gastroesophageal reflux, 425
Maple trees, pollen of, 15
Masako maneuver, in dysphagia, 562, 566
Mast cell stabilizers, 104–105
adverse effects of, 104–105
in allergic rhinitis, 180
uses of, 104
MAST test, 30–31
Mastocytosis, 210–211
Maxillary sinus, squamous cell carcinoma of, radiologic staging of, 743–744, 745
Maxillofacial and oral pathology, advances and new concepts in, **859–880**
Maxillomandibular osteotomy and advancement, 995
background of, 1001–1003
technique of, 1003–1006
McGovern, K., virtual abdomen and, 251
Medical education, continuing, Internet-based, 305–306
Medical literature. *See* Literature, medical.
Medical Literature Analysis and Retrieval System, 278
Medicine, "Doorway to the Future" of, 243–244
MEDLARS, 278
MEDLINE, 267, 278–279, 280, 281–282, 283, 289, 305
Melanoma, adjunctive hypofractionated radiation therapy in, 837
cutaneous, in radical neck dissection, 834–835
nodal metastasis of, interferon alpha-2B in, 837–838
of head, sentinel node biopsy in, 836
positive lymph nodes as prognostic factor in, 835–836
treatment of neck in, **833–839**
Mendelshon maneuver, in dysphagia, 562, 566
Meniere's disease, allergic, 162–164
Merkel cell carcinoma, 845
MeSH-based databases, 283
MeSH terms, 283–284
Metal reconstruction plates, radiation therapy and, 692
Metastasis(es), of cancer of head and neck, immunodeficiency and biomarkers and, 627–628
of oral carcinomas, pathologic factors in, 625–628
presurgical clinical factors in, 624–625
of primary carcinomas, site and size influencing, 622–624
to lymph nodes. See *Lymph nodes, metastases to.*
Microdexterity systems, telepresence surgery and, **241–253**
Micrognathia, obstructive sleep apnea in children and, 975
Molds, indoor, as allergens, 87
outdoor, 88
Motivational problems, feeding problems in, treatment of, 471–472
Mountain cedar, pollen of, 16
Mucosal challenge tests, 176
Mucosal toxicity, chemotherapy-associated, 892–893
Mucositis, as complication of chemotherapy, 894
Mulberry, pollen of, 14
Müller maneuver, airway caliber and, 945–947
Multimedia, and computers, 256
Multiple sclerosis, dysphagia in, 518–519, 530
Muscular disorders, dysphagia with, 446
Muscular dystrophy, dysphagia in, 530
Myasthenia gravis, dysphagia in, 519, 530
sleep-related complaints in, 1056–1057
Myopathies, sleep-related disorders associated with, 1056–1058
Myotonic dystrophy, sleep-related disorders in, 1057–1058

Naisbitt, John, *MegaTrends* by, 242
Nasal cavity, congenital abnormalities of, dysphagia and, 435–438

Nasal cytology, in otolaryngic allergy, 77
Nasal decongestion, in allergic rhinitis, management of, 106, 107
Nasal disorders, 71
Nasal masses, congenital, dysphagia and, 436–437
Nasal reconstruction, history of, 357–358
using forehead flaps, 357, 358
Nasal steroid sprays, selection of, 102–104
side effects of, 101–102
Nasopharyngeal carcinoma, anatomic considerations in, 786–793
cervical lymph node stations and, 787, 788
diagnostic evaluation in, 788
Epstein-Barr virus and, 899
Epstein Barr virus-associated nuclear antigen and, 789
external beam radiation therapy in, 793–795
incidence of, 785
laboratory and imaging evaluation in, 789–791
lateral retropharyngeal space and, 786–787
management of neck in, **785–802**
nodal groups in neck with likelihood of, 798
pathogenesis of, 785–786
patterns of lymphatic drainage from nasopharynx and, 787, 789
radiation and chemotherapeutic modalities in, 795–796
radiation with surgical salvage versus reirradiation in, 797–799
staging of neck in, 791–793
treatment considerations in, 793
types of, 785
Nasopharyngoscopy, flexible fiberoptic, in obstructive sleep apnea, 926–928
of upper airway, 939
Nasopharynx, carcinoma of, clinically negative neck in, 661–662
masses of, obstructive sleep apnea in children and, 974
patterns of lymphatic drainage from, and nasopharyngeal carcinoma, 787, 789
squamous cell carcinoma of, classification of, 888
radiologic staging of, 730–731
National Library of Medicine, MEDLINE database. *See* MEDLINE.
searches through, 278–280
National Science Foundation, workshop on Medical Applications of Virtual Reality, 242–243
Natural Language Processing (NLP), 283
multimodal input and, 375
Nausea, chemotherapy-associated, 892
Neck. See also *Head, and neck.*
abscesses of, dysphagia with, 443
clinically negative (N0), 602–603
diagnosis of, 805
elective irradiation of, in squamous cell carcinoma of upper aerodigestive tract, 803–813
evaluation of, 657–658
in carcinoma of glottic larynx, 665–666
in carcinoma of subglottic larynx, 666
in carcinoma of supraglottic larynx, 664–665
in lesions of oral cavity, 662–663
in nasopharyngeal carcinoma, 661–662
in oropharyngeal lesions, 663
in squamous cell carcinoma, elective irradiation in, 806–807
treatment of, 805–806
in tumors of hypopharynx, 663–664
in tumors of salivary glands, treatment of, 816
irradiation of, principles of, 807–808
management of, **657–669**
neck dissection in, modified radical, 659
radical, 659
selective, 660
radiation therapy in, 660
surgery in, 658–659
surgical management of, 810–811
therapeutic modalities in, 658–660
treatment of, by site, 660–666
doctor factors in, 661
in tumors of salivary glands, 816, 819
patient factors in, 661
tumor factors in, 661
clinically positive (N+), 603–604
adjuvant therapy for, 684
authors' approach to, 682–684
clinical staging of, specificity of, 674–675
comprehensive neck dissection for, 683
palliative treatment of, 682
preoperative investigations of, 682–683
squamous cell carcinoma of, invasion of carotid artery in, 676–677, 678
surgical technique in, 683–684
treatment of, in salivary gland cancers, 815
in squamous cell carcinoma of upper aerodigestive tract, **671–686**
with adverse histologic features, 675
contralateral N0, 681–682
diagnostic evaluation of, **601–620**
clinical impact of, 602–605
dissection of, 760
after chemoradiation, complications of, 780–782

and adjuvant radiation therapy/chemotherapy, 682
choice of, factors influencing, 674
classification of, **639–655**, 673–674
by Committee for Head and Neck Surgery and Oncology, 642–643, 654
by Spiro, 653–654
comprehensive, 653, 654
division into zones or levels for, 673
evolution of, 672–674
extended, 650–651
in treatment of cancer of major salivary glands, **815–821**
modified, definition of, 643–644
indications for, 644–645
modified/functional, 672–673
radical, 672–673
definition of, 643, 644
in cutaneous melanoma, 834–835
indications for, 643
salvage, 680–681
selective, 645–646
anterior compartment type, definition of, 649
indications for, 649–650
indications for, 648
lateral type, definition of, 647
posterolateral type, definition of, 648
indications for, 648–649
supraomohyoid type, definition of, 646
indications for, 646–647
dissection specimens from, gross examination of, 760–761
histologic evaluation of, **759–770**
elective radiation of, dosing and fractionation of, 809–810
neck failures after, 809
technique of, 809
examination of, in allergy, 166
in obstructive sleep apnea, 926
groups of lymph nodes in, 788
head and, cancer of, dysphagia with, 577–578
management of, in cancer of head and neck, **585–754**
in clinically negative cervical nodes in nonmelanocytic cutaneous carcinoma, 848–851
in head and neck cancer, **759–905**
issues related to chemoradiation in, 775–776
in nasopharyngeal carcinoma, **785–802**
in nonmelanocytic cutneous carcinomas, **841–856**
in thyroid cancer, **823–831**
nodal groups in, with likelihood of nasopharyngeal carcinoma, 798
radiation portals of, elective, principles and design of, 808–809
recurrent disease of, 604–605
staging of, in nasopharyngeal carcinoma, 791–793
surgical management of, in thyroid cancer, 828–829
treatment of, in melanoma, **833–839**
tumors of, metastasis of, to retropharyngeal lymph nodes, 678–679
upper, face, and scalp, lymphatic drainage of, 846
Nedocromil, in allergies, 201
Negropont, Nicholas, *Being Digital* by, 242
Neoadjuvant chemotherapy, in cancers of head and neck, 884
Neoplasms, dysphagia caused by, 446–448, 527
Neurofibroma, dysphagia with, 448
Neurologic deficits, dysphagia caused by, 443–446, **507–524**, 530–531
Neurologic diseases, dysphagia in, 512–521
Neuromuscular disease(s), degenerative, dysphagia with, 576–577
producing impairment of motor component, sleep apnea in, 1056–1058
Neuromuscular junction, diseases of, dysphagia with, 445
Neurons, integrative and executive, defects involving, sleep apnea in, 1055–1056
Neuropathy(ies), autonomic, sleep apnea and, 1054–1055
chemotherapy-associated, 893
Nodal basins, important, for skin cancers, 833–834
Non-rapid eye movement sleep, 1050, 1051
Nose, allergic reactions and, 175–176
deviated septum of, obstructive sleep apnea in children and, 974
examination of, in allergy, 166
in obstructive sleep apnea, 922–923
surgery of, in allergic patients, 184–185
Nucleic acid(s), cellular, techniques to identify and quantify, 859–860
content of specimen, techniques for evaluating, 864–865
Nutritive oral stimulation for infants, 465–466

Oaks, pollen of, 14
Obesity, obstructive sleep apnea and, 954–955
Obesity-hypoventilation syndrome. See *Sleep disordered breathing.*
Olive tree, pollen of, 14–15
Ondine's curse. See *Alveolar hypoventilation.*
Oral appliances, in treatment of snoring and sleep apnea, **1039–1048**
approach to patient in, 1046–1047

Oral appliances (*Continued*)
efficacy of, 1044–1045
mechanism of action of, 1040–1044
side effects of, 1045–1046
types of, 1039–1040
Oral cavity, and maxillofacial pathology, advances and new concepts in, **859–880**
cancer of, nodal metastasis in, Camargo Hospital experience with 510 selected carcinomas, 629–632
ipsilateral, clinical variables and, 630, 631
demographic data and, 630, 631
pathologic variables and, 633
risk of, multivariate models of, 633
stage variables and, 632
tumor thickness and, 626
carcinoma of, angiogenesis in, without metastasis, 628
metastasis of, pathologic factors in, 625–628
presurgical clinical factors in, 624–625
changes in, with aging, 486
congenital abnormalities of, dysphagia and, 435–438
examination of, in obstructive sleep apnea, 924–925, 926–927
health of, maintenance of, cancer therapy and, 893–897
topical agents for, 894, 895
in infant, anatomy and physiology of, 406
injury of, dysphagia and, 448
lesions of, clinically negative neck in, 662–663
management of, during oncology treatment, 894–896
preoncology management of, 893–894
squamous cell carcinoma(s) of, classification of, 887–888
radiologic staging of, 734, 736, 737
Oral challenge food tests, 143–144
Oral-motor and swallow stimulation, for nonoral feeders, 462–465
Oral-motor therapies, in anatomic structure problems causing dysphagia, 466–467
in swallowing and feeding problems, 460–468
Oral sensory stimulation, in swallowing therapy, 568
Oromotor strenthening exercises, in swallowing therapy, 566–567
Oropharynx, examination of, in obstructive sleep apnea, 924–925, 926–927
lesions of, clinically negative neck in, 663
physiology of, 508–509
squamous cell carcinoma of, classification of, 887–888
radiologic staging of, 731–733, 734, 735
Osseo-integration of implants, 693
Osteocutaneous graft, free, and secondary corticocancellous bone grafting, 710–714
Otitis, chronic external, 159
Otitis media, with effusion, 161–162
Otolaryngic allergy contract, CPT codes considered in, 225
Otolaryngic allergy emergencies. See *Allergy emergencies, otolaryngic.*
Otolaryngic allergy management, **69–82**
allergens for, 79–80
avoidance techniques in, 73
economic issues in, 70–71
history taking in, 72–73
initial management in, 74–75
physical examination in, 73–75
quality of life issues and, 71–72
testing modalities in, 77–79
topical nasal steroids in, 75–76
treatment modalities in, 80–81
Otolaryngology, and Internet, **255–276**
computers in, **241–392**
telemedicine in, **319–329**
Otologist, allergy for, **157–173**
Otoscopy, virtual, **383–392**

Palliative chemotherapy, in cancers of head and neck, 885
Paper-radioimmunosorbent (PRIST) test, 148
Papilloma, dysphagia with, 446–447
Parkinson's disease, dysphagia in, 516–517, 530
Parotid lymph nodes, metastasis of cutaneous carcinomas to, 851–853
Patient, virtual, 377
Patient education, computer-based, **309–317**
future trends in, 314–316
interactive, 309–310
benefits of, 310–311
creation of, 317
noninteractive (passive), 309
physician and patient use of Internet and, 313–314
physician bringing into practice, 312–313
physician use of, benefits of, 311–312
disadvantages of, 312
Patient record(s), computerized, architecture of system for, 298
codification of medical knowledge in, 296–298
existing, architectural flaws in, 291–292
"center of universe" problem in, 292–293

functional, factors promoting availability of, 294
functional deficiencies of, 293
goals of user of, 294–296
ideal, 293–299
limitations of, 290–293
platform-hardware efficiency for, 299
electronic, 289
paper, strengths and weaknesses of, 291
Pemphigoid, benign mucosal, dysphagia in, 529
Penicillium, 21
Peristalsis, with aging, 487
Peritonsillar abscess, dysphagia with, 442
Phadebas RAST assay, 28–29, 30, 31
Pharmacia CAP system, 31–33
Pharmacotherapy, for allergic rhinitis, **91–110**
in otolaryngic allergy emergencies, 215–217
Pharyngeal airway, airflow obstruction, pathophysiology of, 911–912
obstruction of, in obstructive sleep apnea, **911–918**
Pharyngeal critical pressure, 912
measurements of, clinical implications of, 916
Pharyngitis, acute, dysphagia with, 441
Pharynx, and airway, separation of, in swallowing disorders, 548–550
collapsibility of, increased, mechanism for, 912–914
in infant, anatomy and physiology of, 406
in swallowing, with aging, 486–487
leading complex of, 481
longitudinal and dilating forces in, 914–915
neurophysiology of, 509–510
posterior, injury of, dysphagia with, 448
Physical examination, in otolaryngic allergy emergencies, 213–214
to assess source of dysphagia, 510–511
Physician education, computer-based, **301–307**
after medical school, 305–306
in medical school, 303–305
Physicians Accessing Internet (PAI) project, of American Medical Association, 257
Plastic surgery, advanced surgical technologies for, **357–368**
computer-aided, 362
Poliomyelitis, sleep apnea associated with, 1056
Pollen(s), 13–18, 88
trees, 13–16
Pollen surveys, geographic, 12
Polymerase chain reaction, 860, 868–869
Polyps, effect of allergic rhinitis on, 183
Poplars, pollen of, 15
Positron emission tomography, in detection of lymph node metastases, in cancer of head and neck, 612–613
Postnasal discharge, thick, in allergic rhinitis, management of, 106–107
Postural therapy, in dysphagia, 563, 564
Prausnitz-Kuster test, 147
Preswallowing stimulation, in swallowing therapy, 568–569
Prick test, in food allergies, 146–147
Priming, in allergic rhinitis, 183
Prince, Dr. Jonathan, 243
Prokinetic agents, in gastroesophageal reflux, 427–428
Prosthodontic rehabilitation, as concern in maxillofacial defects, 690
following radiation therapy, 691
patient selection for, 690
prosthetic concerns in, 690–691
Psychologic disorders, dysphagia in, 533
Pulmonary disease, chronic obstructive, sleep-related hypoventilation in, 1058–1059
Push technology, 274

Radiated field, secondary reconstruction of mandibular condyle, ramus, body, and symphysis in, 714–719
Radiation therapy, adjunctive hypofractionated, in melanomas, 837
and chemotherapeutic modalities, in nasopharyngeal carcinoma, 795–796
effects of, on bone, 692
external beam, in nasopharyngeal carcinoma, 793–795
following hyperbaric oxygen therapy, 693, 695
in clinically negative neck, 660
metal reconstruction plates and, 692
prosthodontic rehabilitation following, 691
soft-tissue and bone injury following, 691
timing of placement of grafts following, 694
with surgical salvage, versus reirradiation, in nasopharyngeal carcinoma, 797–799
Radioactive iodine, in cervical lymph node metastases in thyroid cancer, 829
Radioallergosorbent (RAST) assay, 27–28, 148–149
modified, 29–30, 32
Radiofrequency volumetric tissue reduction, 994
Radiographic assessment, of dysphagia, 412–414, 415

Radiologic diagnosis, and staging, of squamous cell carcinoma of head and neck, **727–754**
Radiologic staging, of squamous cell carcinomas, 730–745
Radionuclide scans, to study swallowing, 539
Rapid eye movement sleep, 1050, 1051–1052
Reirradiation, surgical salvage versus, in nasopharyngeal carcinoma, 797–799
Remote manipulation, in surgery, 245
Reproductive surgery, advanced surgical technologies for, **357–368**
Respiration, dynamic imaging during, 950–952
Retinoids, for chemoprevention of cancer of head and neck, 886
Retrognathism, obstructive sleep apnea and, 923, 925
Retropharyngeal abscess, dysphagia with, 442–443
Retropharyngeal space, lateral, nasopharyngeal carcinoma and, 786–787
Rheumatoid arthritis, dysphagia in, 529
Rhinitis, allergic. See *Allergic rhinitis*.
Rhinologists, allergy for, **175–187**
Rhinorrhea, in allergic rhinitis, management of, 107
Riley-Day syndrome, sleep apnea in, 1054
Riley-Powell-Stanford surgical protocol, for management of sleep disordered breathing, 989–991, 1008–1009

Salivary glands, cancer(s) of, metastases to lymph nodes in, 815
  occult metastases to lymph nodes in, 820
  treatment of clinically negative neck in, 819
  treatment of clinically positive neck in, 815
  major, cancer of, dissection of neck in treatment of, **815–821**
  tumors of, elective neck treatment and postoperative radiation in, 821
  treatment of clinically negative neck in, 816
Scalp, face, and upper neck, lymphatic drainage of, 846
Scientific posters, on-line posting of, 270
Scintigraphy, bolus, in dysphagia, 494
Scratch test, in food allergies, 146
Segmentation, 248
Sensitivity(ies), allergen, quantitation of, 41–42
  chemical, and potential sensitizers, 57, 58
    increasing incidence of, 59–60
    laboratory assessment in, 62–63, 64
    neurologic tests in, 65
    physical examination in, 62
    provocation testing for chemicals in, 63–64
    signs and symptoms of, 60–63
    treatment of, 64–65
  chemical and environmental, definitions in, 56–57
    historical overview of, 55–56
    put in perspective, **55–67**
Sentinel node biopsy, in melanomas of head, 836
SET testing, in otolaryngic allergy, 78–79
Shy-Drager syndrome, 1055
Simulators, computer-generated, 370
  for medical applications, 370
  surgical, endoscopic sinus, 376–380
    haptic sensations and, 372–373
    immersive, 370–371
    nonimmersive, 371
Single photon emission computed tomography, in detection of lymph node metastases, in cancer of head and neck, 612–613
Sinus disease, allergies and, interrelationship of, 182–183
Sinus surgery, endoscopic, computer-augmented, **331–340**
  alternative modalities of, 339
  criteria for systems providing image guidance for, 338–339
  current approaches to, 335–339
  electromagnetic tracking device for, 335–336
  general concept of, 331–332, 333
  optically-based localization device for, 338
  position-sensitive mechanical arm device for, 336–338
  preoperative image data for, reformatting of, 332, 334
  real surgical field and virtual patient, 332–335
  in allergic patients, 184–185
Sinusitis, allergic fungal, 185–186
Sjögren's syndrome, dysphagia in, 529
Skill deficit problems, dysphagia with, 470–471
Skin, cancers of, important nodal basins in, 833–834
  carcinomas of, nonmelanocytic, management of neck in, **841–856**
Skin testing, in allergies, medications contraindicated in, 212
  in otolaryngic allergy, 77–78
  strategies of, compared, 43–46
    dose comparisons in, 43–45
    final maximum skin test in, 46
    increases in antigen dose between, 46
    initial safety skin test in, 45–46

Skin tests, 176–177
allergen sensitivity, quantitation of, 41–42
allergy, for inhalants, **35–53**
for food allergy, **35–53**
for food hypersensitivity, 47–48
immunotherapy starting dose, 42–43
intradermal tests, to diagnose contact allergy, 39–40
modified prick tests, to diagnose contact allergy, 38–39
patch tests, to diagnose contact allergy, 36
prick tests, to diagnose contact allergy, 37–38
scratch tests, to diagnose contact allergy, 37
skin and point titration, to diagnose contact allergy, 40–41
Sleep, control of ventilation during, 1049–1053
non-rapid eye movement, 1050, 1051
rapid eye movement, 1050, 1051–1052
Sleep apnea, and snoring, oral appliances in treatment of, **1039–1048**
approach to patient in, 1046–1047
efficacy of, 1044–1045
mechanism of action of, 1040–1044
side effects of, 1045–1046
types of, 1039–1040
central, **1049–1065**
and abnormal upper airway resistance, 1060–1062
sensory component of, 1053–1055
syndromes with, 1053–1061
obstructive, 919, 1031–1032. See also *Sleep disordered breathing*.
blood pressure evaluation in, 921
Body Mass Index and, 921–922
bypass surgery of upper airway for, **1013–1023**
continuous positive airway pressure and, 955–956
dental appliances and, 956–959
examination of neck in, 926
facial skeleton assessment in, 923, 924, 925
flexible fiberoptic nasopharyngoscopy in, 926–928
general characteristics of patient with, 920–921
genetics of, upper airway imaging and, 962
height and weight and collar size evaluation in, 921–922
identifying patient with, **919–929**
in infants and children, evaluation of, 969–970
indications for surgery in, 971
nonsurgical and surgical management of, **969–977**
nonsurgical management of, 971–972
surgical management of, 972–975
treatment options in, 970
insights into treatment of, with upper airway imaging, 953–961
nasal examination in, 922–923
obesity and, 954–955
office evaluation in, 920–928
oral cavity and oropharynx examinations in, 924–925, 926–927
pharyngeal airway obstruction in, **911–918**
preoperative, intraoperative, and postoperative management of, **1025–1030**
pharmacologic, 1030
preoperative cephalometrics for diagnosis of, 1027–1028
retrognathism and, 923, 925
surgery of upper airway in, 959–961
uvulopalatopharyngoplasty in, 959–961
Sleep disordered breathing, in hypopharyngeal airway, surgical management of, **979–1012**
management of, anesthesia considerations in, 988–989
hypopharyngeal and base of tongue procedures for, 993–995
palatal procedures for, 991–993
Riley-Powell-Stanford surgical protocol for, 989–991
risk management for, 1008–1009
surgical procedures for, 987–988
medical therapy of, 1032
surgical management of, 1032–1034
future considerations in, 1034
long-term results of, **1031–1035**
Sleep disorders, **911–1065**
Sloan–Kettering Cancer Center, experience with, 825–827
Sneezing, in allergic rhinitis, management of, 106, 107
Snoring, and sleep apnea, oral appliances in treatment of, **1039–1048**
primary, in sleep disordered breathing, 987
Soft palate, and obstructive sleep apnea in children, 974
Southern blot, for hybridization studies, 865–866
Spindle-cell tumors, malignant, immunohistochemical studies of, 862
Squamous cell carcinoma(s), epidemiology of, 842
metastasis of, factors associated with, 842–844
of clinically positive neck, invasion of carotid artery in, 676–677, 678

Squamous cell carcinoma(s) (*Continued*)
of head and neck, American Joint Committee on Cancer nodal staging guidelines and, 746, 748
angiogenesis in, 592–595
extranodal metastatic disease in, 750–751
lymph node metastasis in, incidence of, 727, 728
staging of, 745–751
matrix metalloproteinases produced by, 591
primary, staging criteria by site, 728, 729
tumor staging in, 728
radiologic diagnosis and staging of, **727–754**
staging of, nodal groups of importance in, 746, 747
of oral cavity, classification of, 887–888
of oropharynx, classification of, 887–888
of subglottis, 743
of upper aerodigestive tract, elective irradiation of clinically negative neck in, 803–813
treatment of N+ neck in, **671–686**
radiologic staging of, 730–745
tumor biology of, 804–805
State dependent imaging, of upper airway, 952–953
Steroids, in allergies, 201–202
Streaming, 274
Stroke, aspiration pneumonia following, 520
dysphagia in, 519–521, 530, 575–576
effects on swallowing, 481–482
Subglottis, anatomy of, 738, 743
carcinoma of, clinically negative neck in, 666
squamous cell carcinoma of, 743
Sucking, nonnutritive, 462
sensorimotor, problems of, management of, 466
Sucking patterns, 403
Suckle reflex in infant, 402
Supraglottis, anatomy of, 738, 740
carcinoma of, clinically negative neck in, 664–665
squamous cell carcinoma of, radiologic staging of, 739, 740–742
Supraglottopexy, petiole, in swallowing disorders, 554–555
Surgery, computer-assisted instruction in, 243
telepresence, microdexterity systems and, **241–253**
Surgical simulation, computers in, 363–366
Surgical simulator, abdominal, 363, 364
Surgical technologies, advanced, for reconstructive and plastic surgery, **357–368**
Swallowing, afferent pathways and feedback in, 480–481
anatomy and physiology of, in adults and geriatrics, **477–488**
and feeding, development of, 405–407
disordered, in children, classification of, 407–408
medical history in children with, 408–409
assessment of, in children, 409–412
assessment sheet for bedside clinical evaluation, 410–412
central control of, 477–478, 479
delivery system of, defects creating problems in, 398
difficulty with. See *Dysphagia*.
disorders of, compensatory treatment in, 569–572
pediatric, anatomy and physiology of, **397–404**
evaluation of, **405–418**
prevalence of, 561
surgical therapy for, **537–560**
therapeutic intervention in, models of, 562–563
therapeutic models based upon, 575–578
therapy for, in adults, **561–579**
versus management of disorder, 562
disruption of, factors causing, 401
effects of anatomic and physiologic changes of aging on, 486–487
effects of stroke on, 481–482
esophageal sphincter in, 482–483, 485–486
esophagus in, 485
evaluation of, 538–539
fiberoptic endoscopic examination of, 414–415
in infant, 403
components of, 397–398
importance of, 398
normal oropharyngeal, 508, 510
phases of, 398–403, 407, 537–538
role of cerebral cortex in, 478–480
stage of, therapeutic models based upon, 572–575
techniques to facilitate, 563–569
Swallowing center, 402
Swallowing maneuvers, 562, 563–566
Sycamore, pollen of, 15
Systemic lupus erythematosus, dysphagia in, 528–529
Systemic sclerosis, dysphagia in, 528

Tastes, provision of, in dysphagia, 463–464
Telecomputing, 255–256

history of, 256
recent changes in, 256
Telemedicine, bandwidths for, 320–321
history of, 319–320
in otolaryngology, **319–329**
advantages of, 321–323
practical application of, 324–325, 326, 327
patient acceptance of, 321
resumes, on Internet, 323
technical evolution in, 320–321
Telephony, 274
Telepresence surgery, microdexterity systems and, **241–253**
Telepresence Surgery System, of Dr. Philip Green, 245, 246–247
Three-dimensional manipulation, for virtual endoscopy, 248
Thyroid, lymphatic drainage of, 824
Thyroid cancer, anaplastic, 830
cervical metastasis of, and prognosis in, 823, 825
clinical presentation of, 824–825
incidence of, 823
management of neck in, **823–831**
medullary, metastases to lymph nodes in, 829–830
surgical management of neck in, 828–829
Thyroplasty, medialization, in swallowing disorders, 550–551
Tinnitus, in allergy, 164–165
Tissue antigens, identification of, 860
Toffler, Alvin, *The Third Wave* by, 242
Tomography, electron beam, 248
Tongue, collapse of, obstructive sleep apnea in children and, 974
Tonsillitis, acute, dysphagia with, 441
Tonsils, obstructive sleep apnea in children and, 972–973
Topical chemotherapy, of cancer of head and neck, 887
Tracheoesophageal diversion, in swallowing disorders, 556–557
Tracheoesophageal fistula, 439–440
Tracheostomy, history of, 1013
in obstructive sleep apnea in children, 975
permanent (skin lined), 1013–1014, 1016–1018
avoidance of complications in, 1019–1020
clinical results of, 1020–1021
closure of, 1021–1022
immediate postoperative care following, 1018
indications for, 1014–1015
long-term follow-up care following, 1018–1019
surgical techniques for, 1015–1018
temporary, 1015–1016
Tube feeding, transition from, to oral feeds, 494
Tumor-node-metastasis system, for staging of cancers of head and neck, 882–883
Tumors, ablation of, selection of bone grafts for reconstruction following, 691–692
angiogenesis of. See *Angiogenesis.*
of head and neck, bone grafting following removal of, 691
distinguishing between, 860
Turbinate hypertrophy, allergies and, 183
causes of, 184

Ultrasonography, in dysphagia, 414, 495
to study swallowing, 539
Ultrasound, computed tomography or, for detection of occult lymph node metastases, 834
in detection of lymph node metastases, in cancer of head and neck, 609
Unified Medical Language System (UMLS), 284
Uniform Resource Locator (URL), 263
United States National Library of Medicine (NLM), 278–279
Upper airway. See *Airway, upper.*
Upper airway resistance syndrome. See *Sleep disordered breathing.*
Upper respiratory tract, carcinomas of, nodal metastases of, 621–634
Utensils, changes in, in pediatric dysphagia, 468
Uvulopalatopharyngoglossoplasty, 993
complications of, 1001
Uvulopalatopharyngoplasty, in obstructive sleep apnea, 959–961

van Overbeek's diverticuloscope, 545, 546
Vascular rings, dysphagia with, 440–441
Vasovagal reaction, 210
Vein, second jugular, bilateral lymph nodes and, 675–676
Ventilation, control of, during sleep, 1049–1053
Vestibular hydrops, 164
Video monitor, 244–245
Video teleconferencing, controversial areas in, 325–328
for home use, 316
future of, 328
legal considerations for, 325–327
Videoendoscopic swallowing study, in dysphagia, 492, 496–498
protocol for, 499–504, 505
Videofluoroscopic swallowing study, in dysphagia, 453, 489–490, 495–496, 505, 511–512
Virtual endoscopy. See *Endoscopy, virtual.*

Virtual environments, **369–381**
expert systems and, 373–376
multimodal input, 373–374
simulation and training in, 375–376
Virtual otoscopy, **383–392**
Virtual patient, 377
Virtual reality modeling language (VRML), 274
Virtual reality simulators, 249–251
Vocal cord(s), medialization of, in swallowing disorders, 550, 553
paralysis of, dysphagia with, 438
Vocal fold dysfunction, 199
Vomiting, chemotherapy-associated, 892

Wakefulness, 1050
Warthin's tumor, fine-needle aspiration biopsy of, 875–876
Web-only publishing, 271–273
Weeds, pollen of, 17–18
Weight loss, obstructive sleep apnea and, 954–955
Willows, pollen of, 15
World Wide Web, background and design of, 263–265
content in, 267–270
medicine and otolaryngology, 267–270
education in, for medical students, 304
Internet and, 257
new developments on, 273–274
otolaryngology page on, 268
searching of, 265–266
site(s), 263–264
of interest to otolaryngologists, 269

Zenker's diverticula, cricopharyngeal myotomy in, 542–544
treatment of, 542–545
Zygomycetes, 21